

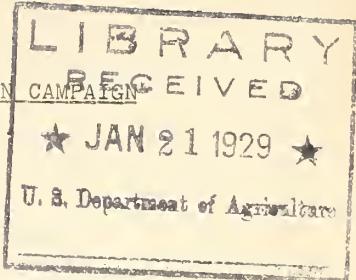
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A DIGEST OF THE ANNUAL REPORT OF THE BARBERRY-ERADICATION CAMPAIGN
IN WISCONSIN IN 1928

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INTRODUCTION

The campaign to eliminate the common barberry, the principal source of black stem rust in the upper Mississippi Valley States, was begun in 1918. During this period nearly 5,000,000 barberry bushes and seedlings have been found and destroyed in Wisconsin alone. However, many barberries still remain in Wisconsin, and these are being destroyed as rapidly as time and means permit.

The black stem rust which attacks the cereals wheat, oats, barley, and rye, is the greatest hazard to the profitable production of small grains in the north-central part of the United States. The average annual loss in Wisconsin due to the ravages of black stem rust in the last thirteen years exceeds \$1,000,000.

The eradication of the common barberry in this north-central region is the most immediately effective method of black stem rust control. It has been suggested that rust might be blown into this region from the south or even live over winter without need of the barberry, yet the evidence obtained each season, as stem-rust development is studied, emphasizes the conclusion that common barberry is the only important source of black stem rust in Wisconsin.

The barberry eradication campaign in Wisconsin is conducted jointly by the United States Department of Agriculture, the Wisconsin State Department of Agriculture, and the College of Agriculture of the University of Wisconsin. It is directed by a State Leader under the supervision of the Office of Cereal Crops and Diseases, Bureau of Plant Industry, United States Department of Agriculture. The Conference for the Prevention of Grain Rust of Minneapolis, a non-governmental organization of agricultural and business leaders, cooperates very closely in several phases of the work.

The funds for barberry eradication are provided mainly by Federal and State appropriations. During the entire campaign the United States Department of Agriculture has provided 91.3 per cent of the funds expended and the Wisconsin State Department of Agriculture 8.7 per cent, which includes 2.5 per cent as indirect financial aid other than cash appropriation.

1/ State Leader of Barberry Eradication in Wisconsin.

RESUME OF BARBERRY ERADICATION, 1918-1928.

Initiation of the Campaign

Barberry eradication was undertaken in 1918 when war demands created a great need of food materials. A first survey was planned to reduce the numbers of barberries as rapidly as possible during this period to prevent the recurrence of such a devastating rust epidemic as had developed in 1916. This first survey was an inspection of city properties and the farm sites in rural districts. At that time common barberry bushes were believed to be growing mainly as planted ornamentals in cities and about farm yards.

First Survey

The first survey was completed in Wisconsin in 1924. It resulted in the destruction of 3,360,187 common barberry bushes over the entire State. In the more newly developed sections of the State it has prevented the escape from cultivation of these bushes, which spread very rapidly, thereby saving an enormous amount of work which would have been necessary had their eradication been delayed. It also has greatly reduced the amount of stem rust inoculum produced each spring.

Second Survey

A second and more intensive survey was begun in 1924. In this survey a more careful inspection is made of all places where barberries might be growing, including natural timber, brush, and fence rows. Before the first survey was completed it was evident that barberries not only were growing where they had been planted but were widely scattered where birds, which feed upon the berries, had chanced to carry the seeds. The second survey thus far has been limited to the counties in the southern half of the State, where barberries were first introduced and are the most numerous. The second survey has now been completed in 11 counties. This survey is to be extended to cover all counties in which barberry bushes have been introduced.

Many situations have been found where the numbers of barberries have increased enormously, and the bushes may be found growing wild over large areas. In some cases, these areas of escaped bushes cover several townships. In the greater number of instances, however, the spreads have not become so extensive and the area can be cleared easily if attacked at once.

The second survey thus far has resulted in the destruction of more than 333,000 common barberry bushes and seedlings in addition to those of the first survey.

Resurvey

Resurvey has followed the first survey where bushes were found. Its purpose is to check up the success of eradication methods and to destroy seedlings which have grown from barberry seeds lying in the ground.

ACTIVITIES IN BARBERRY ERADICATION, 1928

Field Personnel

The men employed for field work in barberry eradication are selected almost entirely from those who have received training in a college of agriculture or are at present attending an agricultural college. Such men are available during the summer months when the field work is in progress, and have the information essential for satisfactorily carrying on their job. Men having considerable farm experience are preferred for this work, and only those making a satisfactory school record are considered. All of these men receive training in barberry and rust identification and in methods of surveying and eradicating before they are sent into the field.

Organization

The field men are organized into squads composed of four to six men. Each group is in charge of a squad leader who is directly responsible for the thoroughness of the survey accomplished. This type of organization is a most efficient one where large tracts of timber, such as are found in Wisconsin, must be scouted.

Methods of Survey

The second survey must be as thorough as it is possible to make it. All timber, brush, accessible waste land, fence rows, and in fact every place where barberry bushes might possibly be growing, are carefully searched. In timber or brush the scouts walk at sufficiently short distances apart to insure that bushes between them are not being missed. The squad leader constantly follows his men, stimulating careful work and checking the results. Where more open territory is being scouted the squad is divided into smaller groups for more efficient operation.

Methods of Eradication

Digging and grubbing bushes was the usual means of eradication in the first part of the campaign. This method has now been replaced by the use of common salt, which kills rapidly when piled on and around the base of a bush. The latter method insures against the subsequent appearance of sprouts, a result that frequently occurred when the bushes were dug, and is a much cheaper means of eradication. Digging is still resorted to when barberries are growing close to valuable shrubbery, which may also be killed by the application of salt.

Eradication Progress in 1928

Barberry bushes have been found to be the most abundant in the older settled portions of the State where they were first introduced and have had time to spread. It is, therefore, most urgent that eradication activities be concentrated in the southern portion of the State. The past season's activities have been in this region. In Dane and Rock Counties more than 67,000 barberry bushes, large and small, have been destroyed this year. In the vicinity of Mount Horeb and Black Earth there has been found the largest area of escaped barberries known to exist in the State. Here, over an area of six townships, these destructive bushes have been growing wild by the

thousands. Such areas may serve as a source of barberry infestation for other regions and must be cleaned up as soon as possible for this reason, as well as because of their immediate menace as a source of stem rust. Another extensive region of escaped bushes has been surveyed in the vicinity of Milton in Rock County.

About 98 tons of common salt have been used in eradication work this season.

EDUCATION AND PUBLICITY ACTIVITIES

The final success of barberry eradication will depend quite largely upon the support and cooperation given to it by the citizens of the State. This support can be expected in a new work, such as barberry eradication, only when the people have possession of the full facts and generally understand the work. The educational and publicity phase of the work is intended to make this information available to the public.

Education Through Schools

Material for studying the rust and for learning to identify the barberry was sent to 3,315 rural schools this year. It has been used in the schools as a part of the agricultural and nature-study teaching programs. Likewise, 434 high schools of the State received material for laboratory and classroom study.

Barberry Demonstrations

The barberry has been placed on display throughout the region where eradication has been in progress. Demonstrations which include specimens of the harmful common and the harmless Japanese barberries, rusted grains, as well as other shrubs often confused with barberry, have been held at nine fairs, festivals, and like gatherings. Fifteen window displays including the same materials have been arranged.

Cooperation of the Press

The press has been very helpful to the campaign in bringing this subject to the attention of the people. Thirty-five different newspaper articles concerning barberry eradication have been widely published over the State this year.

BLACK STEM RUST STUDIES

Black stem rust was of so little importance in Wisconsin this year that it was given little consideration by grain growers during the past harvest.

However, studies made this season have shown that in some small areas near common barberries severe stem rust losses did occur. 2/ Several such fields were found in Dane and Jefferson Counties. Fortunately, weather conditions were not favorable for the rapid development of rust, and fields somewhat removed from the barberry were not injured by the disease. These isolated losses were insignificant in the State as a whole.

A total of 47 cases was found where grains and grasses had become rusted in

2/ See map showing a spread of rust in Dane County from one barberry to surrounding grains during 1928.

small areas about barberries. These are only an indication of the thousands of similar rust-spreads from barberries which undoubtedly existed in the State. With suitable weather conditions rust would have spread many miles from these barberry bushes and caused State-wide losses.

This rust development during the past season has been an excellent demonstration of the source of stem-rust epidemics in Wisconsin. With these barberry bushes present only good fortune, such as occurred this year, can prevent the continual recurrence of rust epidemics.

OTHER RUSTS

Black stem rust is not the only kind of cereal rust occurring in Wisconsin, although it is by far the most destructive.

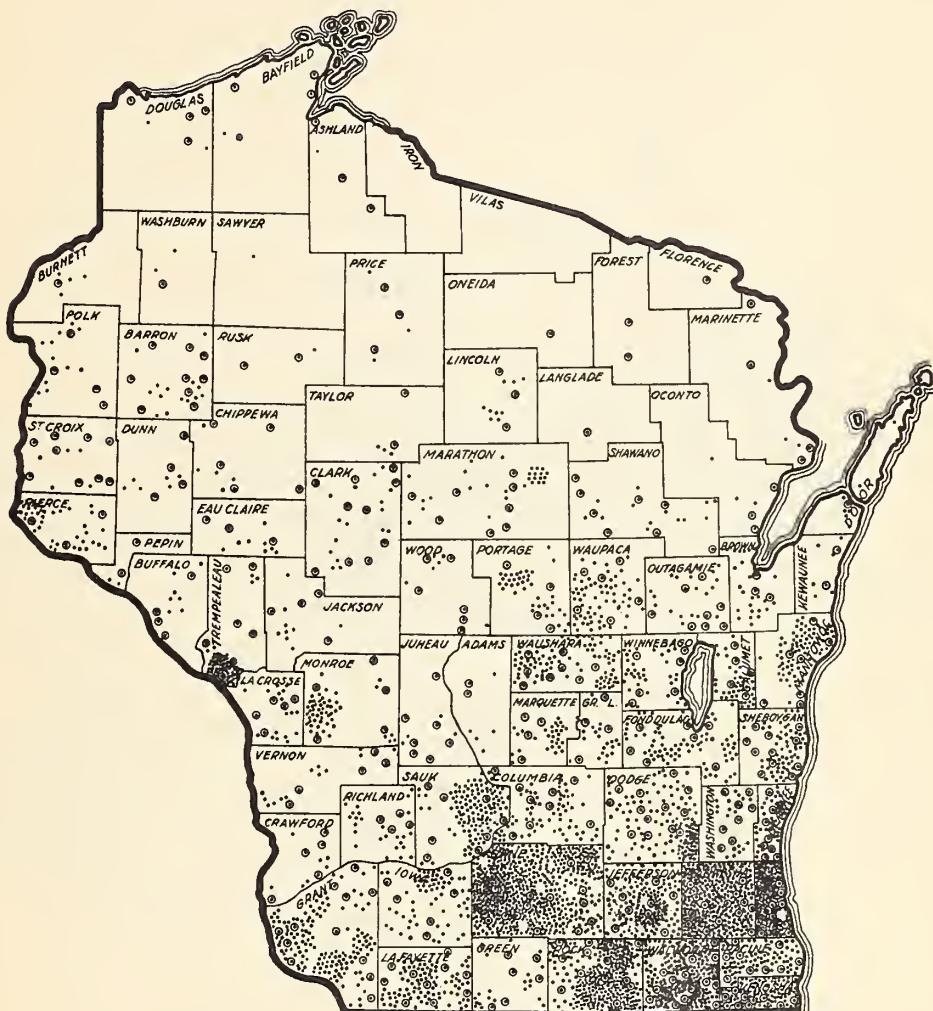
Wheat, rye, and barley are attacked by leaf rusts which may in some cases cause damage in Wisconsin.

Crown rust of oats, which attacks only the oat crop, was very abundant in some sections of southern Wisconsin the past summer. This rust is easily confused with stem rust, since at harvest it appears as narrow oblong spots, somewhat similar to stem rust.

These leaf rusts have no relation to the common barberry and will not be controlled by barberry eradication. Care should be used to distinguish between stem rust and the other rusts. Specimens of rust, as well as barberry specimens, will be identified if sent to the State Leader of Barberry Eradication, State Capitol Annex, Madison, Wisconsin.

PROPERTIES HAVING BARBERRY BUSHES 1918-1928

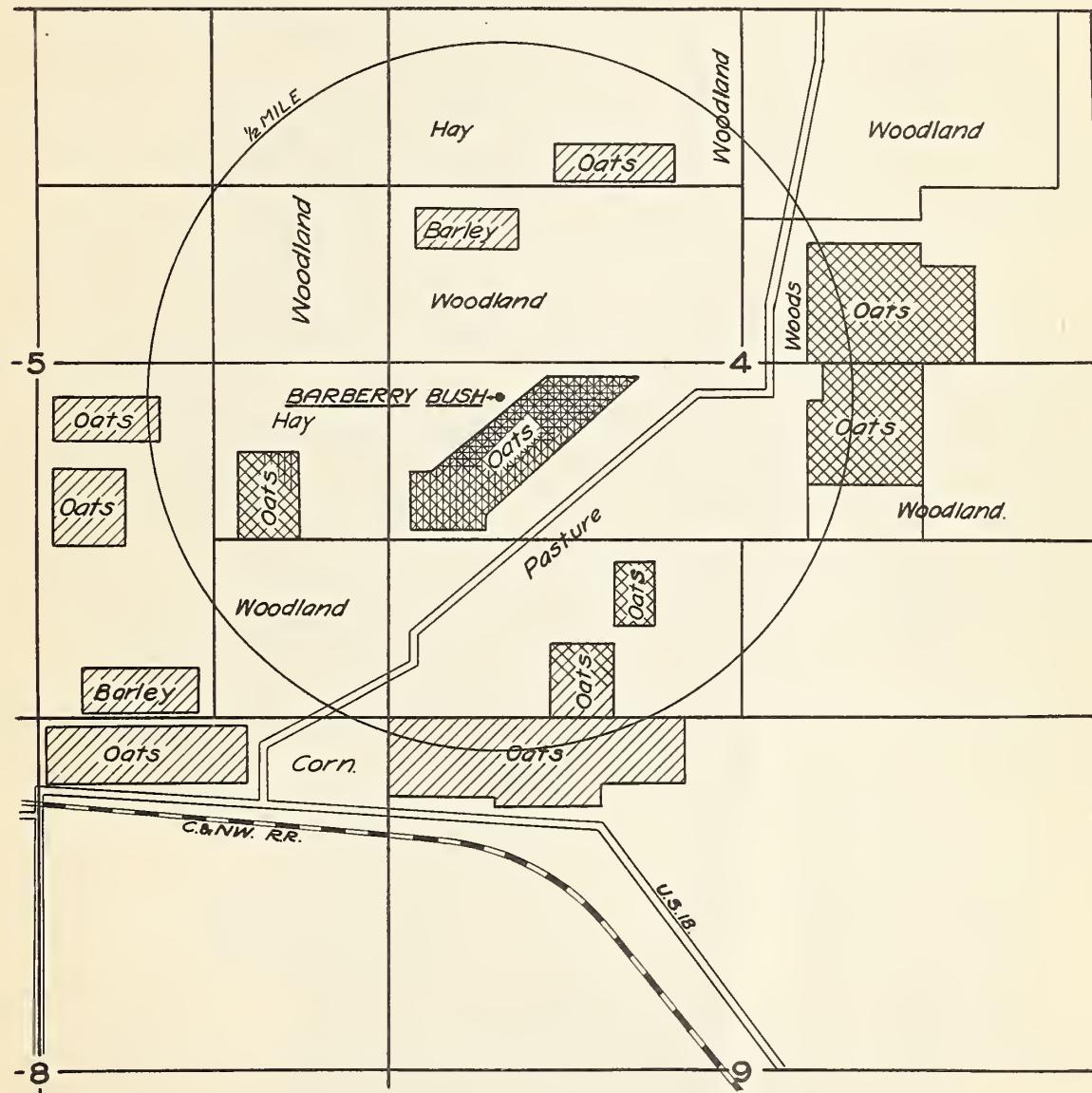
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5,003,095 PROPERTIES
10,655 BUSHES

- FARMS HAVING BARBERRY BUSHES
- TOWNS HAVING BARBERRY BUSHES

STEM RUST SPREAD TO GRAINS
FROM ONE COMMON BARBERRY
BLUE MOUND TOWNSHIP, DANE CO., WIS.
JULY 25, 1928.



DEGREES OF INFECTION.

1-5% Severity
Trace.

5-25% S.
Light.

25-45% S.
Moderate.

45-65% S.
Heavy.

